

## Field Report: Connecting a FS2 via Bluetooth to a PocketPC Running the Software “TheSky Pocket Edition“ by Christian Wallasch

### Equipment:

- Gemini41 observatory
- FS2, firmware 1.21 (purchased from TS)
- HP hx4700 (Microsoft Mobile 2003 SE – Windows CE 4.21; bootloader 1.01; XIP-version 4.21.14132.0; revision number ROM 09/12/04; bluetooth firmware version 2.26; driver version 0.02.00; software version 1.5.0.2000)
- TheSkyPocket Edition V 1.10.011 (TSPE)
- PicoPlug as “serial to bluetooth” adapter (see also Q&A #30)

### Prearrangements:

- After plugging PicoPlug to the serial port of your home PC (notebook etc) use the provided software to program the desired interface parameters of PicoPlug:
  - Transfer rate 9600 Baud
  - Protocol 8N1
- Install TheSkyPocket Edition to HP hx4700
- While running TSPE you have to assign all necessary parameters to be able to connect to the FS2
  - From the menu “Telescope“ select “Set-up“ (Fig.1):
  - Now choose „LX200“ as communication protocol (Fig.2) (optionally one can check two additional options (“Use cursor...”, “Log RA/Dec...”) – I did not check any of these options (Fig.3) – if you check “Use Cursor...”, you can use the switches of the PocketPC to control N-S-W-E movement of the mount)
  - After having selected “Settings“, choose “COM-Port 8“ as communication port (Fig.4)
- As mentioned in Q&A 30 and suggested by Markus Emmerich, I constructed my own power cable for the PicoPlug using the encoder port of FS2 (to be honest, it was my father how did it – he loves to do such things!)

### Let's go:

- Connect PicoPlug to the serial port of FS2 (the right screw of the plug of the hand box must be removed, otherwise it will be difficult to install PicoPlug to the serial port of FS2)
  - Attach hand-made power cable to PicoPlug or use power supply unit which comes with PicoPlug
  - Attach hand box
  - Attach motor cable(s)
  - Switch on

### PocketPC (unfortunately my operating system runs in German, therefore I have no idea about the exact terms for the buttons and menus in the English version...):

- From the “Start“ menu select “Settings“ tab “Connection“ (Fig.5). Start program “Bluetooth“ and select “Switch on Bluetooth“ to activate bluetooth (Fig. 6 and Fig. 7), then quit program and start “Bluetooth Manager“ (Fig. 8)
- From the menu bar select “New“ – this will start the “Connection Wizard“. Now select “Look for Bluetooth Devices“ (I have no idea about the correct translation here) and then (Fig. 9) “Next“
- The connection wizard will now display all identified devices (and all other devices one had established a connection to) (Fig. 10)
- Select “PicoPlug“ (which was hopefully identified) – now the connection wizard will display all available “Services“ (=“Dienste“) for this device; choose “Serial Port (SSP)“ (Fig. 11) and then “Next“

- Now the connection wizard tells us, that the link to PicoPlug is established (Fig. 12). Quit the wizard via selecting "Done". The following screen is displayed (see Fig. 13)
- "Double-clicking" "PicoPlug: Serial Port (SSP)" activates the Bluetooth-connection to PicoPlug. An established connection can be visualized by choosing the tab "Active Connections" (Fig. 14)
- Start TSPE. From the menu "Telescope" select "Establish link" (Fig. 15) – and you are done! The PocketPC will take over the command from the FS2, similar to Vixen's Skybook...if PicoPlug is connected to the PocketPC, the LED on the top will be shining green (without connection it is yellow or off?). If there are any problems, TSPE will display the appropriate messages (Troubleshooting: connection of PicoPlug to serial port of FS2, right COM-Port selected, settings of PicoPlug COM-Port ok? (see above))

After polar alignment of the mount, I choose a reference star and synchronize FS2 by using the hand-box. After having answered the "W" / "E" question of FS2, I centre the same star on the display of the pocket PC (i.e. Castor, Fig. 16) and select the star with the stylus. On the information screen tap "Sync" (Fig. 17). After transfer of data from the PocketPC to FS2, a crosshair is displayed in "map mode" which directly points to the synchronized object (Fig. 18). From now on, you can completely focus on the visual observation and remote control the mount/telescope.

If you now run the Bluetooth-Manager and select the tab "links (?)" (= "Verknüpfungen") additional information about the existing connection is displayed (Fig. 19/20):

- Quality of the signal
- Bytes transferred vice/versa
- Duration of connection

#### Summary:

- Connecting to and controlling of the FS2 via Bluetooth using a PocketPC and TSPE is not a big deal
- Controlling the mount via a PocketPC allows the observer to focus on the essential point: observing the night sky!
- Even if FS2 is connected via Bluetooth to the PocketPC, the hand box can be used for controlling the mount (up to now, I did not find the time to examine whether hand box slews during a bluetooth connection to the PocketPC are reflected in TSPE)

#### Important (just for hx4700 users):

The battery pack is always an issue with portable devices. From my experience (3 to 4°C, 4-5h observation time), the build in 1800mAh rechargeable battery pack is absolutely sufficient for a whole night. If temperature drops below -10°C battery pack power might become an issue, but only field experience will tell us if this is true...

#### Drawbacks:

##### Software:

- "Night Vision Mode" for "map mode" is perfect, but the information display (necessary for controlling the telescope) is the opposite (see Fig. 16), black letters on a grey background – after one hour of adapting eyes to the darkness this is no fun...even if you dim down the backlight to the faintest setting.

##### HP hx4700:

- The LED on the upper left hand side of the hx4700 which signals that Bluetooth is switched "on" could also be installed in a light house – masking is a must!
- During winter times controlling the mount via the innovative mouse-pad of the hx4700 (for moving the mount to N-S-E-W) will – in my opinion - not work; probably a PocketPC with conventional switches is better suited for this purpose. Every user should keep this in mind and come up with a personal decision.

FS2:

- none

*Disclaimer: Der Autor schildert in diesem Dokument seine Erfahrungen zur Anbindung der FS2 über Bluetooth an ein PDA (HP hx4700). Für eventuelle Schäden an Soft- oder Hardware bei der Benutzung o.g. Protokolls übernimmt der Autor keinerlei Haftung. Dieses Dokument erhebt nicht den Anspruch auf Vollständigkeit. Für andere als die unter „Equipment“ bezeichneten Geräte liegen keinerlei Erfahrungswerte vor.*



Fig. 5:



Fig. 6:

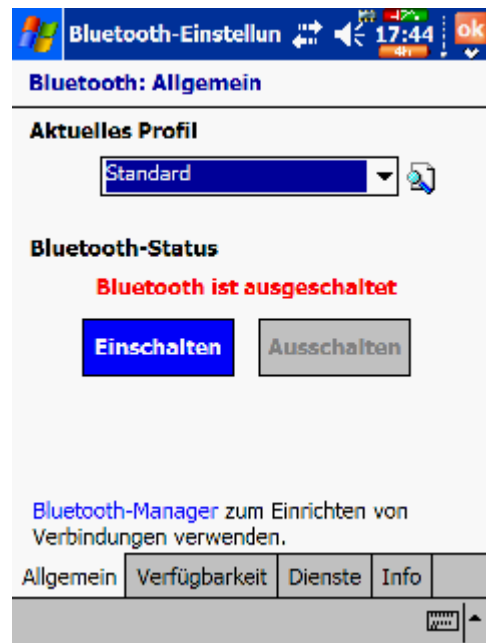


Fig. 7:

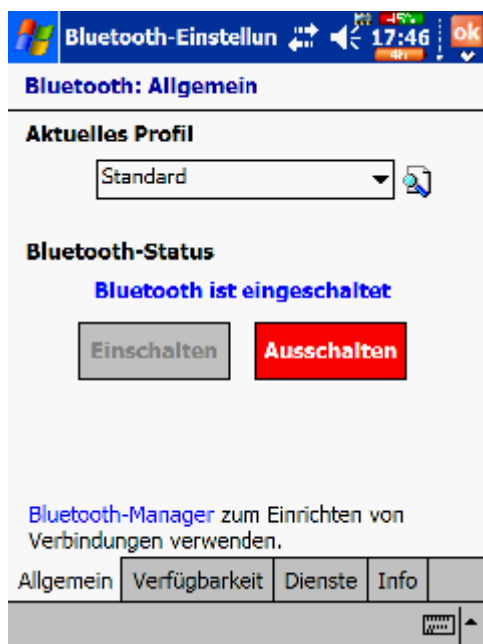


Fig. 8:



Fig 9:

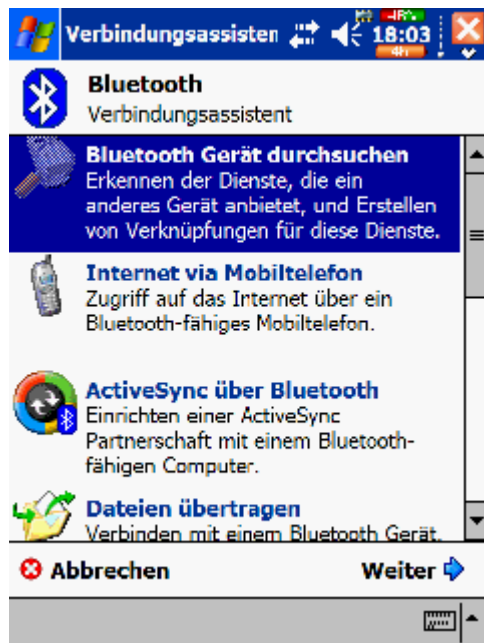


Fig.10:

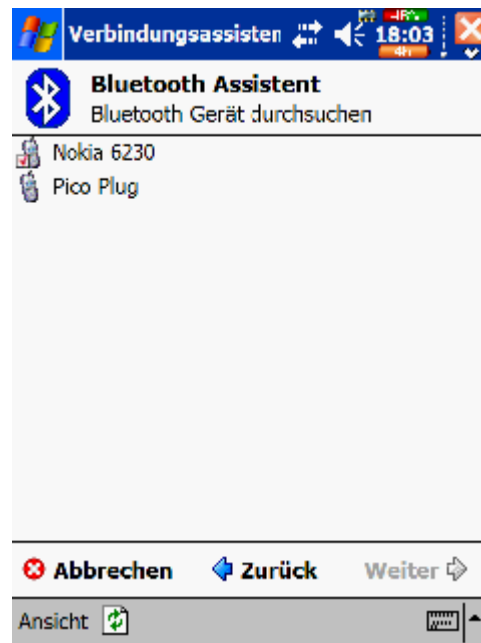


Fig 11:

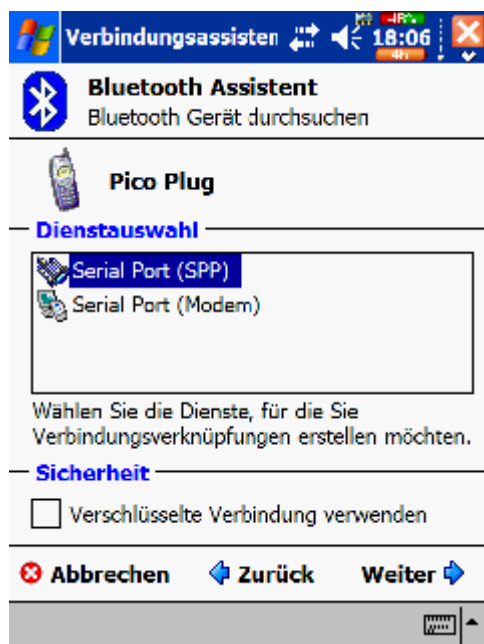


Fig.12:



Fig 13:

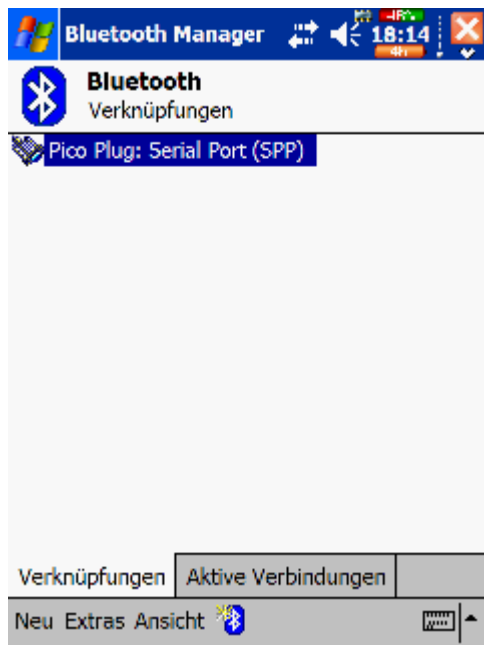


Fig.14:

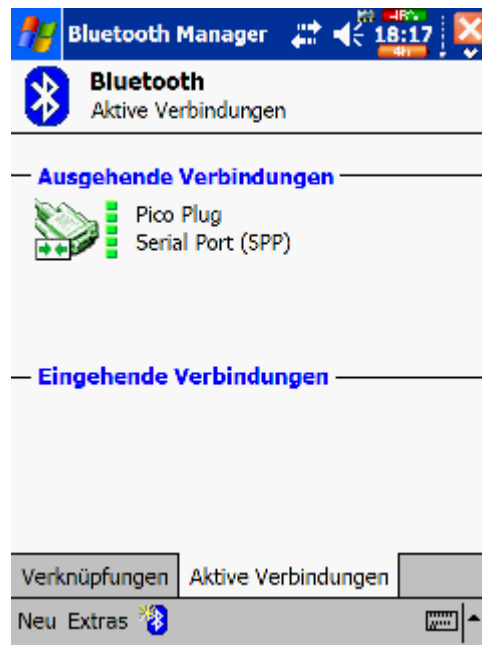


Fig 15:

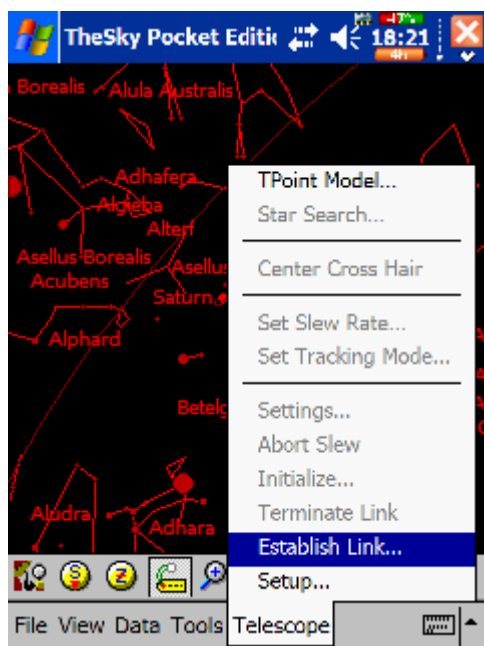


Fig.16:

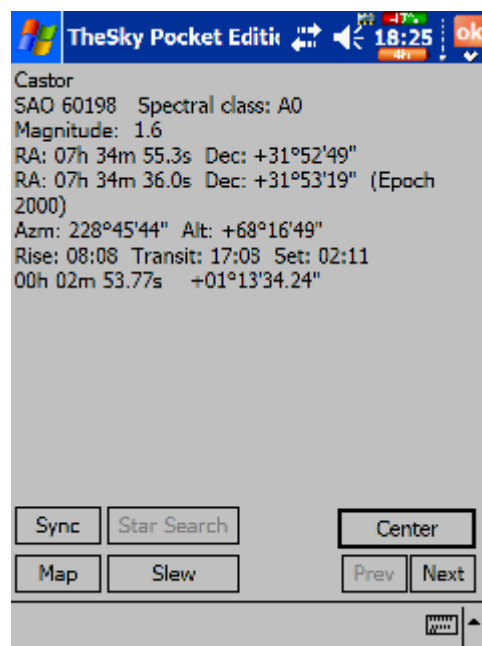


Fig 17:

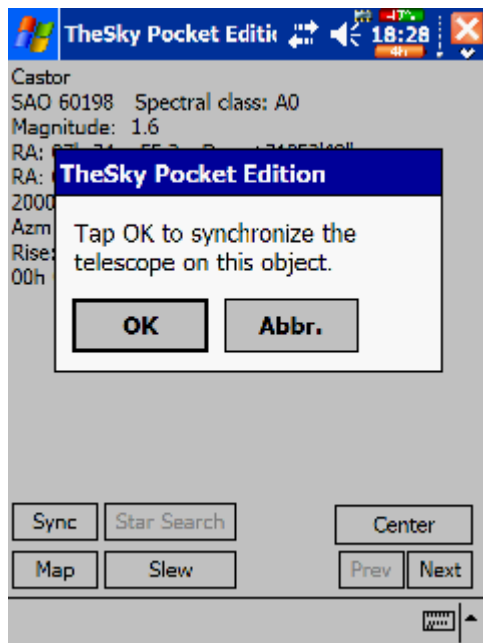


Fig.18:

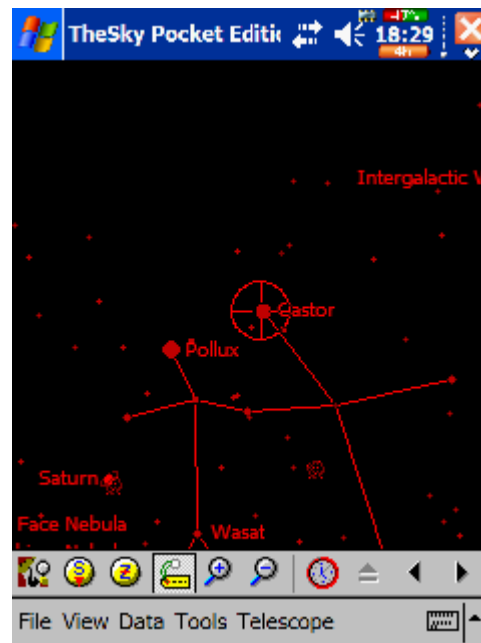


Fig. 19:

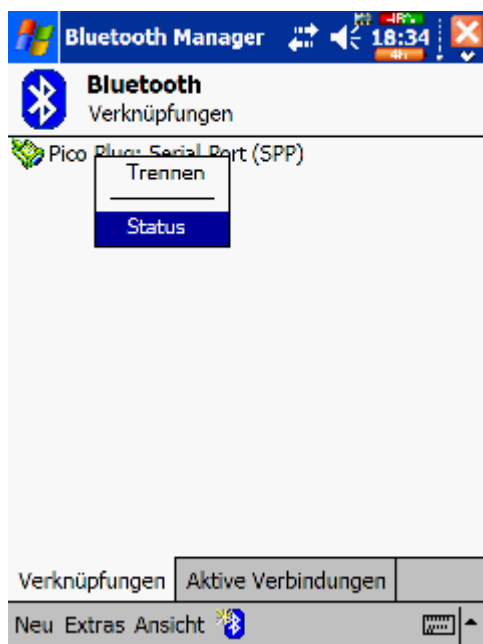


Fig. 20:

